



**Testimony
Before the Subcommittee on Oversight and
Investigations
Committee on Energy and Commerce
United States House of Representatives**

**Products Used to Thwart Detection in
Drug Testing Programs**

Statement of

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Mr. Chairman, and Members of the Subcommittee, I am Robert L. Stephenson, the Director of the Division of Workplace Programs at the Center for Substance Abuse Prevention in the Substance Abuse and Mental Health Services Administration (SAMHSA) of the U.S. Department of Health and Human Services (HHS). On behalf of Charles Curie, SAMHSA Administrator, we thank you for holding this important hearing. We welcome this opportunity to provide testimony about our experience with and knowledge about products that claim to prevent detection of certain substances by drug testing programs.

The Drug Testing Responsibilities of the Division of Workplace Programs

The Federal Agency Drug-Free Workplace Program was established by Executive Order 12564 in 1986, and mandated by Public Law 100-71 in 1987. Together they assigned major responsibilities for the establishment and operation of the Federal Drug-Free Workplace Program to HHS.

Most of the responsibilities for day-to-day operation and oversight were delegated to what is now the Division of Workplace Programs. SAMHSA is responsible for certifying laboratories that perform accurate reliable forensic drug testing in accordance with the Mandatory Guidelines for Federal Workplace Drug Testing Programs.

These Mandatory Guidelines were first published as a Final Notice in the Federal Register on April 11, 1988, and the first 10 laboratories were certified to perform drug testing in December 1988. These Guidelines provide critical support for the overarching Federal Drug-Free Workplace Program that today covers 1.8 million non-military Executive Branch federal employees in 120 Federal agencies. The Guidelines include requirements for the chemical analysis of urine specimens from selected Executive Branch job applicants and employees to determine whether that specimen contained the parent drug or specific metabolic byproducts from marijuana, cocaine, opiates (with the focus on heroin), amphetamines, and phencyclidine.

Even in 1988, based on information from other drug testing programs already in existence, it was known that some non-federal employee specimen donors used household products and chemicals to try to beat the drug test and mask the presence of illicit drugs in their urine. A few examples of commonly used household products used at that time were drain cleaners (sodium hydroxide), vinegar from the kitchen (dilute acetic acid), and soothing eye drops (a dilute salt solution). Since the late 1980's, many more sophisticated products have been developed and marketed by those in business to sell products to illicit drug users to beat their drug test. The increased use of the Internet in the mid-1990's brought an explosion of new products to the marketplace, openly sold for the sole purpose of defeating a drug test.

The Scope of the Federal Agency Workplace Drug Testing Program

Within the Executive Branch, currently about 400,000 of the 1.8 million non-uniformed services employees are in Testing Designated Positions, based on their agency or

department mission and approved drug testing plan. Since the events of September 11, 2001, increased national security concerns have increased federal agency workplace drug testing from 100,000 to over 210,000 tests per year. The vast majority, well over 99 percent, of those tested are negative on their drug tests. In Fiscal Year 2003, in total only 13 Federal agency employee specimens were reported as adulterated; 15 were reported as substituted; and 14 were reported as invalid (i.e., containing an unidentified adulterant, containing an unidentified interfering substance, having an abnormal physical characteristic, or having an endogenous substance at an abnormal concentration that prevents the laboratory from completing testing or obtaining a valid drug test result). Although these numbers are a very small percentage of the total tested, every one of those adulterated, substituted, and invalid tests represents a potential threat to national security and/or public safety. Further, the existence of any use of adulterants requires us to test the remaining 99 percent, at great added cost in time and resources. Perhaps most important is the fact that there are individuals subject to federal workplace drug testing who are not being deterred from beginning or continuing to use illicit substances. These individuals and numerous young adults soon to enter our national workforce may turn to adulterants, masking agents, and substitution products in the mistaken belief that they can beat any drug test that they may be required to take.

Under separate authorities, other Federal Government programs require workplace drug testing using the Mandatory Guideline-certified laboratories for their covered populations, including industries regulated by the Department of Transportation and the Nuclear Regulatory Commission. There are over 11 million employees and job applicants covered by these federally mandated workplace drug tests.

Many of the same drug testing products and testing procedures are also used for criminal justice testing, school-based student testing, testing in the Uniformed Services, the U.S. Postal Service, and non-federal public and private sector employers, with some portion voluntarily tested under our Mandatory Guidelines. It is estimated that between 20 to 40 million drug tests are performed each year, with the accuracy of many of these test results particularly vulnerable to undetected adulterant use by those being tested.

Adulterants – The Marketplace

SAMHSA's experience with and knowledge about products marketed to "beat the drug test" came through its national leadership role of setting standards for urine drug testing and certifying laboratories to perform accurate and reliable drug testing. Drug testing has become a necessity for job applicants and workers in jobs that directly impact public safety and positions requiring security clearances. This widespread application of drug testing has created quite a market for products to beat a drug test, so that illicit drug users can continue their drug use AND be hired into, and stay employed in, jobs where drug testing is a requirement. SAMHSA's National Survey on Drug Use and Health clearly shows that 74.3% of current illicit drug users aged 18 years old or older are employed (2003 NSDUH, published in 2004).

These products are primarily focused on beating the drug test for marijuana, since marijuana is America's favorite illicit drug. We know this information by looking at the percentage of U.S. workforce specimens that test positive for marijuana. Using information provided publicly by one very large laboratory drug testing system, of all the specimens that test positive in the general U.S. workforce, 55% test positive for marijuana. Cocaine positive drug tests make up 15% of the total and opiates (focused on heroin) follow with 6% of the total (Quest Diagnostics Drug Testing index, 2004). Millions of employed persons in Federal service and employees of federally regulated private sector companies are drug tested, and their urine specimens must be tested in laboratories certified by SAMHSA.

Monitoring of Adulterant Products

Since January 2002, SAMHSA has identified more than 400 products marketed to beat a urine, saliva, hair or blood drug test. These products are advertised in print media, available in "head shops", though dietary supplement retailers, and through the Internet. A copy of our compiled list is being submitted as part of our written testimony.

In September 2002, an online Google search of "beat a drug test" revealed 158,000 hits in 0.4 seconds. In May 2005, that same search revealed 1,210,000 hits in 0.21 seconds; a Google search of "pass a drug test" revealed 3,570,000 hits in 0.06 seconds.

We developed and now maintain a spreadsheet of available products by website, in order to track the availability and evolution of these products over time.

Internet Product Advertising and Availability

Internet advertising and access to information on these products primarily focuses on those job applicants and workers who use marijuana. In fact, some internet sites have an interactive questionnaire, and ask the inquirer several questions: 1) what type of drug test? Urine, Blood/Sweat/Saliva, Hair, or Don't Know, 2) Will you know the exact date and approximate time of the test, 3) then guide the inquirer through more questions to gather enough information to be able to recommend products to use to beat the particular type of drug test (e.g., how much of which product to add to the urine specimen, or how to wash the hair with specialized shampoos) and to be successful in beating the drug test.

Concerning marijuana use, the questionnaires ask just how much marijuana he or she uses and how frequent that use is to better advise them on which product to use and how much of that product to use. Advice is given to heavy drug users to use more product to beat the test, compared to light users. Additionally, some advertisements on Internet home pages state that the products work for all toxins and every testing method. They are so confident in the effectiveness of their products that they offer a 200% Money Back Guarantee!

The Types of Adulterants

Since urine drug testing has been used in the civilian Federal and federally regulated workplace since the 1980's, several product types have developed over the years focused specifically on beating the urine drug test. There are four major product types: 1) dilution products; 2) cleansing products; 3) adulteration additives; and 4) substitute urines with actual reservoirs, catheters and life-like prosthetic delivery devices.

1. Dilution Products

Efforts to dilute urine include those that add water to a small volume of the donor's urine and natural diuretics to expedite the elimination of urine from the body. Simply trying to dilute the urine internally to reduce the concentration of drug below the testing cut-off can be done by drinking very large quantities of water, on the order of 120 oz of fluid. This is a very effective method of beating the drug test, especially when the donor knows when the drug test specimen will be collected, as in the case of a pre-employment drug test.

2. Cleansing Products

Cleansing products, such as internal colonics, golden seal, psyllium husks, and specially formulated cleansing drinks, are marketed to "cleanse the body of toxins", more specifically in this case, illicit drugs. As an example, one product is advertised as a dietary supplement, guaranteed to "work" in less than an hour. The ingredients label lists very common items in many other drinkable fluids, such as filtered water, fructose, maltodextrin, natural and artificial flavors, citric acid, potassium citrate, potassium benzoate, potassium sorbate, ascorbic acid, red 40, and riboflavin. These cleansing products likely work along the same lines as products advertised to dilute the urine.

3. Chemical Adulterants

Some products are actually very caustic and corrosive chemicals, such as acids and aldehydes, chemical oxidants such as nitrites, chromium VI (a carcinogen), and bleaches. These harsh chemicals must be added to the donor's specimen, which is easily accomplished when the donor is given the privacy of a restroom stall to provide their specimen. These chemicals are purposely sold in easily concealable small vials and tubes, so they can be brought into the collection site bathroom concealed in the donor's socks or underwear.

4. Prosthetic Devices Delivering Synthetic or Drug-free Human Urine

The most cumbersome, yet highly effective, way to beat a urine drug test is to use a physical belt-like device hidden under the clothing which contains a reservoir to unobtrusively hold real human urine from another person that is free from drugs, and deliver that bogus specimen into the collection container through a straw-like tube, or through a prosthetic device that looks like real human anatomy, color-matched. This last described device is heavily marketed for workplace drug testing and criminal justice

urine collection situations that require directly observed urine specimens to be provided. Synthetic urine can be used in place of real human drug free urine.

Concerns to the Federal Workplace Drug Testing Program - The Need to Require Specimen Validity Testing and Propose Drug Testing Alternative Specimens

In the late 1990's, it became evident that increasing numbers of federally regulated donor specimens contained chemicals intended to mask or beat the drug test. These compounds were identified through routine drug tests that were conducted but gave unusual and unreasonable chemical results. It then became necessary for SAMHSA to establish general testing criteria and issue guidance to laboratories to ensure more consistent analysis of chemicals added to the urine by donors with the intent of beating the drug test. In 1998, testing criteria and guidance were initially provided to the laboratories in an informal manner, with final comprehensive urine specimen validity testing requirements published in the Federal Register on April 13, 2004. This Notice also required that each and every Federal job applicant or employee urine specimen be tested not only for illicit drugs, but also to determine if the specimen provided is a valid one, i.e., consistent with normal human physiology. These criteria did not solve the problem entirely, because the very nature of some of the products, particularly those that deliver synthetic urine or drug free human urine, produce specimens that actually test negative for illicit and pass specimen validity tests because they are testing drug-free urine. Since the April 13, 2004, publication of SAMHSA's new testing requirements, the advertising for this prosthetic type of device has increased. Additionally, the number of specimens now being reported as "invalid" specimens by laboratories has also increased significantly. This is because the companies who produce and market the chemical masking agents know the chemistry of the specimen validity tests that are now required for Federal employee drug testing (and optional for DOT regulated industry drug testing programs). These firms are formulating new versions of the adulterants so they are not detected by these newly required specimen validity tests.

The Effectiveness of Specimen Validity Testing

The effectiveness of required specimen validity testing has been limited because, as adulterants were identified and reported by laboratories and tests developed for them, the products themselves were changed by their manufacturers to avoid being detected. One example is the chemical oxidant potassium nitrite, an active ingredient in many adulterants. As soon as the Federal drug testing program established methods to detect potassium nitrite and thresholds beyond which to report it in specimens, new formulations of adulterants were released that had lower concentrations of that compound, so it would not be detected. And now the product contained more acid to make that formulation more effective – and not detected. Other marketers of adulterant products containing potassium nitrite chose to actually change the active component to one that the laboratories could not detect.

In a September 1999 *Washington Post* newspaper article, a staff writer captured the following interview: "They detect it and we move on," (blank) is an additive that

allegedly fools the tests.” “Beating the labs is like fighting the federal government – they’re so big and slow.....They can’t detect the current formula.”

One of the most disconcerting calls received by SAMHSA staff was from Perry Nuclear Power Plant located east of Cleveland, Ohio. In September 2002, staff at a drug test collection site at the Plant found evidence in a refuse container from a specific adulterant product. This product contains a small plastic bottle with a temperature indicator strip attached, two small plastic vials of white crystalline material, and instructions for use. Per the instructions, the user adds a microvial of urine to water and the product and mixes to dissolve. In about 30 seconds, the drug-free sample is ready to provide in place of the donor’s own specimen. Since it was unclear who or how many applicants used this product, that entire day’s applicants were retested, and 9 of them drug-tested positive for marijuana use. If it had not been for the careless discard of the package in a trash can near the collection site, the use of this product to beat the drug test, which was required as part of a pre-employment fitness for duty test in order to gain access to a nuclear reactor, would have gone undetected.

The Effectiveness of the Products

In order to know what is in products currently marketed to beat a urine drug test, SAMHSA purchases them and tests them according to package direction to evaluate their effectiveness. If the specimen adulterant is effective, the agency performs chemical analyses on them to identify their active ingredients. The goal of most drug test masking agents is to “fool” the initial screening test into showing that there is no drug present in the specimen, so that it does not go on to further confirmatory testing. In order to keep our specimen validity testing procedures current and capable of detecting the ever-changing formulations of adulterant products that are being openly sold in the marketplace, SAMHSA developed a way to assess the potential effect of specific urine adulterants on specimens tested in the federally regulated drug testing program.

SAMHSA devised an experiment to evaluate how effective some of these masking agents really are. Certified negative urine was “spiked” with marijuana metabolite (THCA, delta-9-tetrahydrocannabinol-9-carboxylic acid), cocaine metabolite (benzoylecgonine), phencyclidine, opiate metabolite (morphine), and methamphetamine. The concentration of each analyte was twice the screening test cutoff. This standard analytical approach, taken with each substance that was added to the donor’s specimen, was applied to more than 30 products purchased.

Several versions of one particular product were tested and found to be able to significantly mask a positive drug test, especially for marijuana and morphine. What is most noteworthy is that each successive version of this product is more effective in masking the drug test. Each version of that product has been somewhat effective in masking the presence of marijuana, cocaine, morphine, phencyclidine, and methamphetamine. The chemical composition of each of these versions also changes, which was pointed out in its marketing as an asset.

One adulterant manufacturer changes their product formula approximately every 6 to 9 months to stay ahead of the drug testing labs. It has openly stated that if a certain formula stays on the market too long, its product would be reverse-engineered by the labs and eventually become detectable. Older formulations are exchanged for a current formulation free of charge.

One product that was purchased in April 2001 contained chromate, an oxidant that became known after it had been used for a time. Another version, which was purchased in April 2002, contained hydrofluoric acid, a powerful acid that can etch glass, and sodium nitrite, a strong oxidant. Again, after a time, this combination became known, and the formulation again changed. A subsequent product, purchased July 2002, was a newly designed system, this time consisting of two vials of chemicals added sequentially to urine in the donor's specimen collection cup. One of the vials contained an iodine-containing compound, the other vial contained hydrochloric and hydrofluoric acids. The most recent version of the product is currently available and being evaluated by our staff.

- Some products focus on both marijuana and opiates
- Some products do not affect the initial screening, but affect the mass-spectrometry process used to confirm a positive result from the initial screening, as is required by the Mandatory Guidelines
- Some products are effective, and then disappear on their own
- Ironically, some products are marketed and sold as being able to beat a drug test but have no effect at all.

Continued Impact of Adulterants on Public Health and Safety

These products are marketed with the intent to beat a drug test and are used with a “catch me if you can” attitude by donors who use illicit drugs and want to continue that illicit drug use while engaged in a public health and safety sensitive job. The marketplace for products to beat a drug test, whether a urine, hair, or oral fluid test, is growing. Products and suppliers are proliferating, as is the information about the use of these products. As noted previously, the Internet serves to advertise, market, and provide testimonials as to just how effective these products are, in addition to serving as a point of purchase.

Unless Stopped, the Next Marketing Opportunity for Adulterant Sales will Target Drug Testing and Specimen Validity of Hair, Oral Fluid, and Sweat

SAMHSA's current knowledge of the myriad of products to beat drug tests has forced the Agency to add specimen validity testing requirements for hair, oral fluid, and sweat in our proposed expanded Federal drug testing program. This is necessary because products are now being marketed and sold to beat any drug test, no matter what specimen is collected.

- There is a growing list (7) of products designed and marketed to remove drugs from hair.

- There is another list of (4) products designed and marketed to remove drugs from oral fluid.

Ongoing Concerns

In closing, I want to repeat my earlier concern that although there were relatively few federal agency employee specimens reported in Fiscal Year 2003 as adulterated, substituted, and invalid, there is a clear trend showing an increase in the use of non-urine and “clean urine” substitutions to foil workplace drug testing programs. Although the numbers are a very small percentage of the total tested, every one of those adulterated, substituted and invalid tests represents a potential threat to national security and/or public safety.

Mr. Chairman and Members of the Subcommittee, thank you for the opportunity to provide this information to you. I would be happy to answer any questions you may have.